

Determining the Target Population for Prenatal and Postnatal Care

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THIS ADMINISTRATIVE research study was undertaken to review the way in which one of the oldest public health services, maternal and child health care, was provided and to indicate the effectiveness of the Westchester County Department of Health in reaching its goals. Wylie has indicated that "administrative research develops new knowledge about institutions, programs, operations, the people working in these activities, or the individuals or communities served by them" (1).

One of the challenges and responsibilities in public health today is to determine whether disadvantaged persons are using available services. During this project we looked at the deliv-

ery of maternal and child health care to the high-risk families at the local level.

We attempted to answer the following questions concerning pregnancy and prenatal and postnatal care.

1. How many mothers received no prenatal care and what reasons did they give for this neglect?
2. What was the frequency of visits to physicians or clinics for women who had some prenatal care services?
3. What reasons or factors accounted for the behavior of mothers who did not get early prenatal care?
4. Are the health priority criteria established and used for the past decade by the local health department still valid for the total community needs?
5. Are certain socioeconomic factors useful guides in determining who needs health care most urgently?
6. What recommendations, if any, should be made to health administrators to make their maternal and child health programs more dynamic and responsive to the local needs of the people?

Methodology

Since the primary purpose of this study was to determine whether the present method of selecting mothers and infants to refer for health services was reaching all those who needed such services, selecting a representative sample of

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The department's public health nurses, under Miss Esther Schisa, director of public health nursing, and her assistant directors at the time of the study, Miss Rosalie Flannery and Miss Gracie Edwards, interviewed the mothers. The department's statistical staff assisted in implementing the new method of patient referrals and compiling and tabulating the data.

subjects was not the prime consideration in delineating the study population. Instead, the mothers and babies most likely to be in the high-risk group were the targets of our selection. A guide for this was given in a recent study in Buffalo, N. Y., on defining and identifying high-risk groups (2) which indicated how to localize populations at high risk from the health standpoint, particularly maternal and child health.

Studies have been performed concerning the content, adequacy, or quality of prenatal and postnatal care obtained by mothers and babies using these services. In contrast, the main objective of this project was to determine whether our current program as implemented was actually reaching those persons in our community who needed the services most urgently. Thus, the focus was determining effectiveness of the delivery of maternal and child health services by the health department. It simply questioned whether the target population for prenatal and postnatal care was being reached.

For many decades notifications of all premature infant births, babies born with congenital defects or birth injuries, out-of-wedlock births, primiparas, and mothers who had complications of pregnancy and labor have been sent routinely to the public health nurses for home visitation purposes.

This practice continued until several years ago when our local health department was obliged to establish priorities based on demands on the public health nurses' time caused by the shortage of nurse personnel.

As a result, the department administrators decided on the following home visit priorities for maternal and child health services, which have been followed for the past decade.

Infant has congenital defect.

Infant had birth injury.

Infant weighed less than 5½ lbs. at birth.

Infant born prematurely (less than 28 weeks gestation).

Infant born out of wedlock.

Mother is younger than 18 years and this is her first baby.

Mother is older than 35 years and this is her first baby.

Mother had complications of pregnancy and labor.

In reviewing the current policy of selecting mothers and newborn infants, we noticed that

certain seemingly high-risk mothers and infants were deleted from the selection because of the application of the health priority reasons only. Some of those deleted were a 33-year-old Negro mother born in South Carolina, husband a laborer, 10 previous children still living, two other children born live but now dead; a 28-year-old white mother born in Hungary, husband unemployed, had two previous stillbirths; and a 26-year-old mother born in Cuba, husband a dishwasher, had one previous child now living. We had to determine whether such families were getting the necessary maternal and child health services.

Consequently, in addition to evaluating the current validity of the eight health priority reasons, the study director added the following socioeconomic priority reasons why mothers and babies should be visited by public health nurses.

Mother is foreign born and father is unskilled worker.

Mother has history of stillbirths (more than two).

Mother is multigravida (more than five).

Father is unemployed or is an unskilled worker.

Family lives in low-income area.

Reverting to the original purpose of vital statistics to pinpoint health problems relating to individual persons, to communities, or to diseases, this study was designed to identify and select persons and areas in the community at high risk by the use of familiar tools and techniques.

The well-known and established epidemiologic tools and public health techniques which formed the basis of this methodology were as follows.

1. The birth certificate of the newborn.

2. The supplementary medical data accompanying each birth certificate.

3. Identification of lower social class families by father's occupation and by geographic location of low-income families living in the lower socioeconomic areas by census tracts (3, 4).

4. Interview of mothers by public health nurses using structured questionnaires.

5. Evaluation by public health nurse in consultation with a physician, that mother and infant need and should receive health care and supervision.

With the use of these five tools and techniques we anticipated isolating and identifying high-risk families and their health problems.

The Study Population

From the 1,965 live births which occurred during the study period, 637 mothers of 650 babies were selected to be interviewed by the health department's public health nurses. The response to the survey questionnaire was good—555 interviews (87 percent) were completed.

The 568 infants on whom questionnaires were completed represented 28.9 percent of all live births during the last 3 months and 7 percent of all the live births in 1965.

The study population, chosen to include mainly health and social high-risk families, showed the following differences when compared to the general population of 499,356 persons in the health district.

Characteristic	Percent	
	Health district	Study group
Race:		
White.....	93.8	75.3
Negro.....	6.0	24.0
Other or unknown.....	.2	.7
Occupation:		
Professional, managerial.....	33.8	22.9
Clerical, crafts, and sales.....	43.7	39.0
Service workers, laborers, and so forth.....	22.5	38.1

For the 555 families the health priority and socioeconomic priority criteria were listed 873 times (table 1), either as a single factor or in a combination of several factors responsible for the selection of the families at high risk.

Mothers Without Prenatal Care

According to a pilot project conducted in West Dallas, Tex., in 1964, "nearly 30 percent of all live births—approximately 2,500 babies—are born to mothers who have had no prenatal care" (5). These data reflect the magnitude of the problem confronting some communities in the United States. However, another report (6) indicated that women with live births who did not see a physician for prenatal care decreased from 3 percent in 1952-53 to 1 percent in 1957-58.

In our study 17 expectant mothers, 3 percent of the 555 high-risk mothers, received no pre-

natal care. Although a sample of 17 mothers and their 18 babies was not large enough, from the statistical standpoint, on which to base any valid conclusions, we felt that the reasons for this lack of prenatal care by this group of mothers should be reviewed by the department's public health physicians and nurses.

From the vantage point of public health these 17 families were of concern not only because on an annual basis the local projected figures would number an estimated 130-140 mothers and newborns, but also because the correlation between lack of prenatal care and high infant mortality rate, more congenital defects, increase in number of premature or low birth weight babies, and complications of pregnancy and labor has been questioned (7, 8).

Two of the 17 mothers were primiparas, 10 mothers had one to four previous babies, one mother had twins, and four were multigravidas with more than five infants.

The age distribution of these 17 mothers was as follows.

Age group (years)	Number
19 or younger.....	3
20-24.....	6
25-29.....	4
30-34.....	1
35 or older.....	3

According to the 1960 U.S. census, the population of the Westchester County Health District by race was 6 percent Negro and the remainder white. The proportion of Negro mothers among the selected study group was 20 percent. But among the expectant women who did not have any prenatal care the racial distribution was reversed—nine mothers (53 percent) were Negro and eight were white.

The lower social class status of these 17 families was indicated by the fathers' occupations listed on the birth certificates. Seven infants were born out of wedlock and their mothers did not receive any prenatal care; this represented 12.7 percent of the 55 out-of-wedlock live births which occurred during the study period. A recent study (9) reported that 10 percent of the unmarried mothers in the group first obtained care during the ninth month of pregnancy or obtained no care at all.

The fathers of seven other infants were defi-

nately unskilled workers, with jobs such as dishwasher, laborer, maintenance worker, and factory worker. One father was unemployed when the baby was born. The only occupation not in the unskilled category was that of an electrician with eight children and a clerk with one baby.

Mothers With Prenatal Care

While 17 mothers received no prenatal care, the remaining 538 mothers reported that they had received some prenatal care. Two mothers gave no data on frequency of visits.

Of the 536 mothers who specifically answered the inquiries concerning frequency and period of prenatal visits, only 121 or 22.6 percent had visited their physicians or clinics during their first month of pregnancy; 415 or 77.4 percent had not (table 2).

During their second month, 270 of the mothers sought medical supervision, and by the end of the first trimester 391 or 73 percent had done so. Slightly more than one-fourth (145 or 27 percent) had made no visits.

There was a gradual increase in the number of mothers who visited physicians or clinics, so that 20.8 percent of the 536 mothers made no visits during the fourth month. Prenatal care was defined by some health officials as satisfactory according to minimum requirements if it was initiated not later than the fourth month of pregnancy, if there was at least one visit each month, and if a minimum total of seven visits were made during the 40-week gestation (10). However, it was not until the sixth month

Table 1. Frequency distribution of criteria for selection of 555 families for study, Westchester County Health District

Reason for including mother and infant	Number	Per cent
Infant has congenital defect.....	8	0.9
Infant had birth injury.....	1	.1
Infant weighed less than 5½ lbs. at birth.....	90	10.3
Infant born prematurely (less than 28 weeks gestation).....	2	.2
Infant born out of wedlock.....	55	6.3
Mother is 18 years or younger and primipara.....	41	4.7
Mother is older than 35 years and primipara.....	9	1.0
Mother had complications of pregnancy and labor.....	150	17.2
Mother is foreign born and father is unskilled worker.....	79	9.1
Mother has history of stillbirths (more than 2).....	1	.1
Mother is multigravida (more than 5).....	90	10.3
Father is unemployed or unskilled worker.....	192	22.0
Family lives in low-income area.....	155	17.8
Total.....	873	100.0

of pregnancy that the volume of visits numbered 594 so that theoretically each mother had seen a physician or attended a clinic an average of once a month. During the sixth and seventh months of pregnancy there were two early parturitions. By the eighth and ninth month each mother had an average of two visits for prenatal care.

In probing for reasons why women did not consult their physicians or visit the maternal

Table 2. Frequency and average number of visits made by mothers to physicians or clinics for prenatal care, Westchester County Health District

Month of pregnancy	Total mothers	Mothers				Visits	
		No visits		One or more visits		Total	Average
		Number	Percent	Number	Percent		
1st.....	536	415	77.4	121	22.6	128	0.24
2d.....	536	266	49.6	270	50.4	298	.55
3d.....	536	145	27.1	391	72.9	419	.78
4th.....	536	112	20.8	424	79.2	479	.89
5th.....	535	69	12.9	466	87.1	517	.97
6th.....	534	48	9.0	486	91.0	594	1.12
7th.....	528	21	4.0	507	96.0	795	1.51
8th.....	514	18	3.5	496	96.5	1,119	2.18
9th.....	478	11	2.3	467	97.7	1,442	3.01

Table 3. Number and percentage distribution of reasons why mothers did not obtain prenatal care early, as ascertained by public health nurses, Westchester County Health District

Reasons why prenatal care was not obtained early	Number	Percent
Did not recognize need for or importance of early care.....	59	33.5
Denial of pregnancy.....	18	10.2
No one to care for children.....	15	8.5
Transportation difficulties.....	12	6.8
Long waiting periods in clinics.....	10	5.7
Mother working.....	9	5.1
Unaware of pregnancy (irregular periods).....	9	5.1
Unaware of prenatal services in area.....	8	4.5
Family tensions.....	7	4.0
Fear of physicians.....	6	3.4
Previous pregnancies, thus "experienced".....	6	3.4
Family moved often.....	4	2.3
Mother had emotional problems.....	4	2.3
Other illness.....	3	1.7
Undecided about physician.....	2	1.1
Dissatisfaction with previous prenatal clinic service.....	1	.6
No data.....	3	1.7
Total.....	176	100.0

clinics to obtain prenatal care during the early months of pregnancy, the public health nurses found a total of 176 reasons for the behavior of 134 mothers. The foremost factor for this neglect was that the patients did not recognize the need for or the importance of early care (table 3). Fifty-nine mothers (40 percent of 134) were in this category.

Fifty-nine mothers did not understand the importance of good preventive medical practice such as obtaining early prenatal care. Six additional women stated that their previous pregnancies gave them "experience" and early prenatal care was not necessary for them. Thus, slightly more than one-third of the reasons for late prenatal care showed mothers' lack of proper knowledge.

Eighteen mothers (10 percent) denied their pregnancy until their physiological conditions were irrefutable. Another nine mothers indicated that because of irregular menstrual periods, they were unaware of being pregnant.

Socioeconomic factors such as no child care, transportation difficulties, frequent family

moves, and employment constituted 40 reasons (23 percent) given for not obtaining early care.

According to the nurses' findings dissatisfaction with clinic service discouraged 11 mothers from returning for more health services, and eight mothers were unaware of prenatal services in the area. Other health or emotional problems and miscellaneous difficulties were determined and reported by the public health nurses for 22 mothers.

The results of this study indicated poor communication between families who needed health care and the health department. Of the 555 mothers of 568 babies selected for this investigation because they were in the high-risk group, only 104 or just 18.7 percent were known to the department's clinicians or to nurses for the current pregnancy. The current status of 431 mothers, slightly more than 77 percent, was not known to the health services until the notification of the baby's birth was sent by the study director to the public health nurses for home visiting.

Of the 104 mothers known to the public health nurses, 55 (53 percent) had been referred to the health department from hospital clinics, 16 had been receiving other services from the department's clinics, and 11 had been the subject of public health nurses' inquiries before the babies were born. The department's health services were sought by 14 families who were self-referred.

The weakest link of communication seemed to be referrals from the social agencies and phy-

Table 4. Number and percentage distribution of mothers known to public health nurses for current pregnancies, by source of referral, Westchester County Health District

Source of referrals	Distribution of mothers	
	Number	Percent
Hospital clinics.....	55	52.9
Health department clinics.....	16	15.4
Self or family.....	14	13.5
Public health nurses.....	11	10.6
Social agencies.....	3	2.8
Physicians.....	3	2.8
Neighbors or friends.....	1	1.0
No data.....	1	1.0
Total.....	104	100.0

sicians who together brought only six families to the attention of the public health nurses (table 4).

Among the 555 high-risk mothers and their infants, 185 or 33.1 percent were known to the department at one time or another, 367 or 66.1 percent were not known to the agency, and no data on previous status were available for three families.

Among the 185 mothers with whom the health department had some contact for other services the current pregnancy status for 104 of these patients was known by the public health nurses, but there were 81 mothers (43.7 percent) previously known to the department whose present conditions were not known to the nurses until they received birth notifications. Moreover, among the 104 mothers 17 came to the attention of the nurses during the first trimester, 32 during the second trimester, and 52 mothers not until the third trimester (table 5).

Thus, it was evident that far more contact is needed for some of these families. Pressure of other demands such as the care of the chronically ill patients have diverted the attention and time of the public health nurses, and fresh innovations are needed to solve the problem.

Of the 104 mothers known to the health department with this pregnancy, 78 were receiving prenatal care, but 23 had to be referred to

Table 5. Number of mothers who were previously known or unknown to public health nurses, by trimester, Westchester County Health District

Status of mothers	Distribution of mothers	
	Number	Percent
Known to nurses.....	185	33.1
Not known to nurses.....	367	66.1
No data.....	3	.6
Not known to nurses with this pregnancy.....	431	77.7
Known to nurses with this pregnancy.....	104	18.7
First trimester.....	17	16.3
Second trimester.....	32	30.7
Third trimester.....	52	50.0
Trimester unknown.....	3	3.0
No data on whether known to nurses before and during this pregnancy.....	20	3.6

Table 6. Reasons for selection of families for prenatal survey, in rank order based on families' need for public health nurses for post partum care, Westchester County Health District

Criteria in rank order	Number of times reason was listed	Families' need for public health nurses for post partum care	
		Number	Percent of each reason
Infant has congenital defect (H).....	8	7	87.5
Infant born out of wedlock (H).....	55	48	87.3
Mother is 18 years or younger and is primipara (H).....	41	27	65.9
Family lives in low-income area (S).....	155	91	58.7
Infant weighed less than 5½ lbs. at birth (H).....	90	44	49.0
Father is unemployed or unskilled worker (S).....	192	93	48.4
Mother is foreign born and father is unskilled worker (S).....	79	35	44.3
Mother is multigravida (more than 5) (S).....	90	39	43.3
Mother had complications of pregnancy and labor (H).....	150	59	39.3
Mother is older than 35 years and primipara (H).....	9	2	22.2
Infant born prematurely (less than 28 weeks gestation) (H).....	2	0	0
Infant had birth injury (H).....	1	0	0
Mother has history of stillbirths (more than 2) (S).....	1	0	0
Total.....	873	445	51.0

NOTE: H = health reason.
S = socioeconomic reason.

the clinic for prenatal care. Nurses made 63 home visits to these 23 patients before they sought prenatal supervision.

Health and Socioeconomic Criteria

Based on the ultimate outcome of the public health nurse's interview and the family physician's evaluation—admitting the mother and infant for the department's health care and guidance—a rank listing of the various criteria for including the mothers or babies in this study (table 6) indicates a need to change some of our current administrative policies and prac-

tices in regard to referral and followup of maternity cases.

Infants with congenital malformations, babies born out of wedlock, and the young primiparas were the three most frequent reasons for families needing postnatal care. The fourth reason was socioeconomic—the family lived in a low-income area. This criterion was cited 155 times and unmet health needs were noted for 58.7 percent of the 155 listings. Low birth weight of the infant was the fifth ranked reason, fathers who were unskilled workers, mothers who were foreign born, and large size families were sixth, seventh, and eighth in frequency and replaced in frequency health priority reasons such as mother with complications of pregnancy and older primipara.

There were so few infants with birth injuries, infants with gestational age of less than 28 weeks, and mothers with history of stillbirths that these criteria were not considered in the rank listing.

Based on the index that post partum guidance and care was needed by the mothers and their newborn infants, this study showed that socioeconomic criteria were as important as health reasons in selecting and identifying the high-risk families with unmet needs for maternal and child health care.

Validity of Socioeconomic Criteria

Some of the mothers and babies were included in the study population for only one reason, while others were selected for multiple reasons. Of the 555 mothers and 568 infants needing post partum care, 244 families or 44 percent needed the services of the health department and 311 or 56 percent did not (table 7).

If this administrative study had not been undertaken, only 292 families would have been referred by the birth notification system based on the original eight criteria formulated by the health department, and only 123 families would have received public health nurse visits and postnatal supervision and care. Essentially this study showed that an additional 121 mothers and their newborn babies needed health guidance and supervision in maternal and infant care even though these patients had no stipulated medical reason for receiving an initial visit from the public health nurses. The unmet

health needs of these families were obviously related to their socioeconomic status.

To further refine the data for these 121 families who needed followup care, the families were analyzed on the basis of their status with the department previous to the birth of their babies.

Among the 121 disadvantaged families, 51 were known to the department (table 7), so that presumably birth notifications were an additional reminder to the public health nurses that these families should receive a post partum visit.

However, for the remaining 39 families not known by the health department, plus the additional 31 mothers whose current pregnancy status was not known to the department, the

Table 7. Frequency and percentage distribution of families receiving post partum followup care, by broad grouping of reasons for including mothers in survey and by families' previous status, Westchester County Health District

Reason for including mother	Distribution of families	
	Number	Percent
Total mothers in study.....	555	100.0
Those not receiving post partum care by department.....	311	56.0
Those receiving post partum care by department.....	244	44.0
Mothers included for health reasons only.....	57	23.4
Previously unknown to department.....	29	11.9
Previously known to department.....	19	7.8
Previously known to department, but not known this pregnancy.....	9	3.7
Mothers included for socioeconomic reasons only.....	121	49.6
Previously unknown to department.....	39	16.0
Previously known to department.....	51	20.9
Previously known to department, but not known this pregnancy.....	31	12.7
Mothers included for health and socioeconomic reasons.....	66	27.0
Previously unknown to department.....	17	7.0
Previously known to department.....	33	13.5
Previously known to department, but not known this pregnancy.....	16	6.6

birth notification referrals were of primary importance. These 70 referrals were the first clue to the current unmet health needs of these families. On an annual basis this would represent as many as 280 families, since the number is doubled when mothers and infants are tallied, whose health needs go unnoticed and unmet at a crucial stage of the mothers' and infants' lives.

Ultimately it should not be mere numbers of persons who need care, although the frequency in this situation was certainly high enough to cause concern among health administrators, that guide the formulation of a new approach to solving community health problems.

The concept of health has changed significantly, and the death rate is no longer an adequate index of a population's health. There is a new interest in the total quality of life rather than merely the length of life, in the positive elements of good health rather than merely the absence of disease and infirmity (11). This concept may not necessarily be new to health officials, but to administrators it is the essence of the challenge in evolving new ways of reaching people whose unmet needs are the greatest.

Today the measures of general health and health services should be related to such social issues as the war on poverty, problems of urbanization, and racial discrimination. The findings of the Public Health Service's National Health Survey indicated a positive relationship between poor health and low income. Persons with low incomes, despite their greater need for health care, received fewer health services than persons with higher incomes.

The validity of including socioeconomic criteria in selecting patients for post partum care has support not only from those who advocate that good health is more than merely the absence of disease but from those who seek to break the cycle of poor health and poverty as well. In a rapidly changing society it becomes necessary to reexamine and revise old theories and bring them up to date with changes occurring in the community. The time may have arrived in which the infant mortality rate is not the only and most sensitive index available to public health agencies indicating the level of social and economic well-being of a population group.

According to Stockwell, "the nature of a post-neonatal association clearly indicates that the

extent of unnecessary reproductive wastage is greater among persons living in the lower social rank areas than it is among persons living in areas characterized by a more favorable social and economic environment" (12).

Thus, reaching mothers to avert the preventable death of babies after the first month of life becomes a public health responsibility of some urgency. This need is particularly relevant as applied to the lower social class.

Moreover, the social significance of prenatal and infant mortality was reemphasized by Stickle in his concept of "life years lost" and "future income sacrificed" by showing that the average loss of years of life and economic productivity caused by infant deaths was substantially more than the number of life years lost as a result of death at specified ages from the three major killers—heart disease, cancer, and stroke (13). In an era when the aged and persons with chronic diseases and catastrophic illnesses command the attention in the health field, it becomes necessary occasionally to readjust our sights to view all problems in their proper perspective. Our study was one concerning focus. It pinpointed the target population for postnatal care by isolating mothers and infants from the high-risk group who need post partum care most urgently.

Recommendations

The use of birth certificates and their supplementary medical reports as sources of referral for post partum care should be retained. The selection of patients should, however, be changed to include mothers and infants chosen for socioeconomic as well as for health factors. To neglect doing so means that at least half of the high-risk families in this health district who need post partum care are not visited by public health nurses. The methodology described in this study allowed for the identification of disadvantaged people in the low-income neighborhoods. The study results showed that socioeconomic factors were as important as health reasons in selecting the target population for prenatal and postnatal care.

Another serious problem this study revealed was that among high-risk mothers 3 percent received no prenatal care, and another 24 percent received no early prenatal care because they did

not recognize the importance of early care, denied pregnancy, had no one to care for the other children, or had difficulties with transportation. How to reach these women sometime during their first trimester of pregnancy and encourage them to visit their physicians or clinics early and frequently becomes the primary task of local health officials and national policymakers. Finland, the Netherlands, New Zealand, and the Soviet Union report that virtually all of their expectant mothers seek care early in pregnancy.

How to reach persons in the target population who need prenatal care is not as simple as identifying the mothers and infants for post partum care because the data for referral are not readily available. Improving the department's rapport with physicians and other health and social agencies in the community may improve the present referral system. But the major challenge to medical and nursing leadership is how to reach the 27 percent of the high-risk families who had no prenatal care at all or who did not get early prenatal care. Since the study showed that these mothers did not seek prenatal care, it becomes necessary for the agency to reach out to them in the poor neighborhoods.

Summary

Based upon health priority reasons or socioeconomic criteria or both, 555 mothers and their newborn infants were selected and referred to public health nurses for interviews and for evaluation by physicians and nurses for admission to the Westchester County Health Department's program of post partum followup care and supervision.

The survey results indicated that among this high-risk group of families 17 mothers or 3 percent received no prenatal care at all, 134 women or 24 percent did not get early prenatal care, and frequency of prenatal visits averaged two a month per mother only during the eighth and ninth months of pregnancy.

The mothers' lack of recognition of the importance of early care combined with denial of pregnancy, no one to care for the other children, and transportation difficulties were the four chief reasons accounting for late prenatal care.

This study points out that socioeconomic factors were as important as health reasons in selecting the target population for prenatal and postnatal care. The number of mothers and infants who needed and obtained the department's post partum followup care and supervision was doubled when families were chosen from the lower social class in addition to identification for health considerations alone.

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Program Notes

Survey of Laser Equipment

The Massachusetts Department of Health is analyzing the data collected in a recent statewide survey of laser equipment.

The growing use of lasers—devices capable of producing intense beams of light—prompted the survey. Their widespread use makes it necessary to determine the degree of safety of the general public and of employees where such equipment is located.

The major biological danger in lasers is in their effect on the retina of the eye. Even low levels of exposure may cause retinal burns. Filters, shielding, alignment, eye protection devices, and proper operating procedures can decrease the danger.

A detailed analysis of the hazards of each laser unit can be made by evaluating energy output, wave length, emergent beam diameter, and divergence.—*This Week in Public Health* (Massachusetts Department of Public Health), Oct. 23, 1967.

Vegetation as Clue to Pollution

The Pennsylvania Department of Health has found that aerial surveillance of rivers and lakes for excessive water vegetation is a simple, practical method for detecting water pollution. According to Dr. Daniel Bardarik, an aquatic biologist of the department, if microforms such as algae, slimy moss, and rooted plants are found, pollution sources cannot be far upstream.

After excessive growth of vegetation has been spotted from the air, the staff of the sanitary water board return by boat and take plant samples. Then they backtrack upstream, looking for the pollution sources. Since certain plants have an affinity for certain pollutants, the staff can almost predict the type of pollution that will be found.

Nutrient-bearing pollution from sewage treatment plants and open sewers does not directly kill fish or insect life, Bardarik stated. It causes some waters to become so filled with vegetation, however, that fishing, swimming, and boating are hampered.

Housing Inspection Training

A broad-based training program for housing inspectors was recently offered in Pittsburgh by the Allegheny County (Pa.) Health Department. Its aim, according to health department director Waldo L. Troutling, was "to do more than just teach a man to inspect a house and issue orders to correct substandard conditions."

The purpose of the 2-week program was to bring together all the threads of community responsibility. It was not directed at making the inspectors experts in all fields, but at making them aware of problems so that they can spot potential hazards and call for help from experts when needed.

More than half of the sessions in the program were conducted by staff from outside groups and agencies. Thirty-one housing and building inspectors and related staff attended the sessions.

Children's Psychiatric Institute

A new children's psychiatric institute being set up in Syracuse, N.Y., is expected to serve as a testing ground for new therapeutic and administrative arrangements in child therapy and to provide information about the ways in which personnel trained in specific disciplines in this field can work together effectively. It will open in a series of steps over a 2-year period.

The institute is to operate as a three-way partnership between the department of mental hygiene, the

State University of New York Upstate Medical Center, and the community mental health board of Onondaga County.

Comprehensive services to be made available include a controlled environment to provide milieu therapy for the most severely disturbed children; group and individual therapy, along with specialized educational services and occupational and recreational therapy; and an educational and therapeutic program for parents, as well as family group therapy.

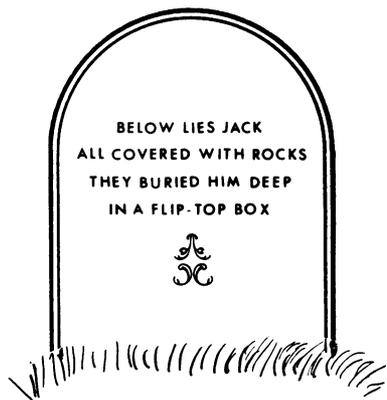
The unit will provide residential treatment for 40 mentally ill children, a day treatment center for 60-80, and night hospitalization for about 20.

Health and Welfare Merger

The New Mexico State public health and welfare departments formally merged on October 1, 1967, by executive order. A five-member appointive board named John G. Jasper, former State welfare director, as the top executive of the new agency.

Epitaphs for Smokers

The Maryland State Department of Health used "cigarette country" epitaphs reproduced on simulated tombstones to attack cigarette smoking in an exhibit at the 1967 Maryland Health Fair.



The exhibit consisted of a graveyard complete with artificial grass and six tombstones inscribed with epitaphs similar to the one reproduced here. Nearby was a container into which smokers were to throw away their cigarettes.